NON-PUBLIC?: N
ACCESSION #: 9006220084
LICENSEE EVENT REPORT (LER)

FACILITY NAME: Wolf Creek Generating Station PAGE: 1 OF 3

DOCKET NUMBER: 05000482

TITLE: Reactor Trip And Main Turbine Trip Caused By High Moisture Separator Reheater Level
EVENT DATE: 05/19/90 LER #: 90-013-00 REPORT DATE: 06/18/90

OTHER FACILITIES INVOLVED: DOCKET NO: 05000

OPERATING MODE: 1 POWER LEVEL: 97

THIS REPORT IS SUBMITTED PURSUANT TO THE REQUIREMENTS OF 10 CFR SECTION:
50.73(a)(2)(iv)

LICENSEE CONTACT FOR THIS LER:
NAME: Merlin G. Williams - Manager TELEPHONE: (316) 364-8831
Plant Support

COMPONENT FAILURE DESCRIPTION:
CAUSE: SYSTEM: COMPONENT: MANUFACTURER:
REPORTABLE NPRDS:

SUPPLEMENTAL REPORT EXPECTED: No

ABSTRACT:

On May 19, 1990, at 2353 CDT, a Main Turbine TA-TRB! trip occurred as a result of high-high Moisture Separator Reheater level. Because the unit was operating at greater than 50 percent power, the Main Turbine trip caused a Reactor trip. As expected, an Auxiliary Feedwater Actuation Signal, a Feedwater Isolation Signal and a Steam Generator Blowdown and Sample Isolation Signal also occurred. All Reactor Protection System and Engineered Safety Features equipment functioned properly.

Following this event, extensive troubleshooting activities were conducted. A level switch on Moisture Separator Drain Tank (MSDT) 'A' was found to initially be stuck thus preventing a Main Control Room alarm on high level. The switch was replaced. The remainder of the level control circuitry for MSDT 'A' was found to be operating properly. No abnormalities were identified in the dump valve to the condenser, the

normal level control valve, or its upstream check valve. No significant abnormalities could be identified during the troubleshooting. The unit was restarted on May 20, 1990, and levels were closely monitored. No further difficulties were encountered in the level control system.

END OF ABSTRACT

INTRODUCTION

On May 19, 1990, at 2353 CDT, a Main Turbine (TA-TRB! trip occurred as a result of high-high Moisture Separator Reheater SB-RHTR! level. Because the unit was operating at greater than 50 percent power, the Main Turbine trip caused a Reactor trip. As expected, an Auxiliary Feedwater Actuation Signal (AFAS), a Feedwater Isolation Signal (FWIS) and a Steam Generator Blowdown and Sample Isolation Signal (SGBSIS) also occurred. All Reactor Protection System (RPS) and Engineered Safety Features (ESF) equipment functioned properly. This event is being reported pursuant to 10 CFR 50.73(a)(2)(iv) concerning unplanned actuations of RPS and ESF equipment.

DESCRIPTION OF EVENTS

Prior to this event, the unit was operating in Mode 1, Power Operation, at approximately 97 percent rated thermal power. On May 19, 1990, at 2353 CDT, a Main Turbine trip occurred as a result of high-high Moisture Separator Reheater level. Because permissive P-9 (Power greater than 50 percent) was enabled, the Main Turbine trip initiated a Reactor trip. An AFAS, FWIS and SGBSIS also occurred.

Following the trip, the control Room operators confirmed that all RPS and ESF equipment had functioned normally. Instrumentation and Control (I&C) personnel were dispatched to investigate the cause of the Moisture Separator Reheater high-high level. The Auxiliary Feedwater Pumps BP-P! were secured and at 0112 CDT, the motor driven Startup Main Feedwater Pump SJ-P! was placed in service.

During subsequent troubleshooting activities, it was discovered that a leve
switch in the level control system for Moisture Separator Tank 'A' SN-TK! was not operating properly. The level switch was stuck, preventing it from transmitting a high tank level signal to the dump valve to the Main Condenser SG-COND!, and preventing a high level alarm from annunciating in the Control Room. After this first attempt to cycle the switch, the switch functioned properly. However, as a conservative

measure, the switch was replaced. The three other Moisture Separator Drain Tanks high level alarm switches were also checked. The 'B' and 'D' switches were out of calibration and were recalibrated. The 'C' high level alarm switch was found to be operating properly. The remainder of the level control circuitry for the Moisture Separator Drain Tank 'A' was also inspected. No further abnormalities were identified.

In an additional effort to identify the cause of the Moisture Separator Drain Tank 'A' high level condition, an inspection of the check valve upstream of the level control valve for the Moisture Separator Drain Tank was performed. Maintenance personnel inspected the accessible portions of the valve and could find no abnormal conditions. Similarly, no abnormalities were discovered in the normal level control valve or the dump valve to the Main Condenser.

Following completion of these activities, the plant was restarted, entering Mode 1 at 1911 CDT on May 20, 1990. As power was increased, the operators closely monitored Moisture Separator Drain Tank levels and no further level control problems were encountered. The unit reached 100 percent rated thermal power at 1830 CDT on May 22, 1990.

ROOT CAUSE AND CORRECTIVE ACTIONS

The investigation conducted to determine the root cause of the high level condition in the Moisture Separator Drain Tank 'A' was not conclusive. The abnormality and out-of-tolerance conditions discovered in the level switches corrected. The malfunction of the level switch in Moisture Separator Drain Tank 'A' by itself should not have prevented the dump valve to the Main Condenser from fully opening on high level, as an additional level switch monitors level and provides a control signal to the dump valve. A Nuclear Station Operator confirmed that both the normal level control valve and the dump valve to the Main Condenser partially open just prior to the unit trip. However, the troubleshooting activities could not positively identify the reason the dump valve to the Main Condenser was not fully open in response to the high level condition.

Licensee Event Report 85-060-00 describes a previous similar occurrence of a Main Turbine trip caused by a level control problem in Moisture Separator Drain Tank 'A'. Investigations following that event were likewise inconclusive in identifying a specific root cause of the event.

In order to prevent recurrence, cautions have added to general operating procedure GEN 00-004, "Power Operation", to remind operations personnel

to closely monitor the Moisture Separator Drain Tank levels during future power ascensions.

ADDITIONAL INFORMATION

All RPS and ESF equipment functioned properly during this event, thus preventing the development of conditions that could have posed a threat to the health and safety of the public.

ATTACHMENT 1 TO 9006220084 PAGE 1 OF 1

WOLF CREEK
NUCLEAR OPERATING CORPORATION

John A. Bailey
Vice President
Nuclear Operations

June 18, 1990

NO 90-0192

U. S. Nuclear Regulatory Commission
ATTN: Document Control Desk
Mail Station P1-137
Washington, D. C. 20555

Subject: Docket No. 50-482: Licensee Event Report 90-013-00

Gentlemen:

The attached Licensee Event Report (LER) is being submitted pursuant to 10 CFR 50.73 (a) (2) (iv) concerning an Engineering Safety Features actuation.

Very truly yours,

John A. Bailey
Vice President
Nuclear Operations

JAB/aem

Attachment

cc: R. D. Martin (NRC), w/a

D. V. Pickett (NRC), w/a
M. E. Skow (NRC), w/a
J. S. Wiebe (NRC), w/a

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